



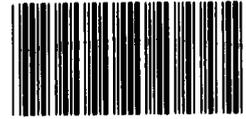
UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

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GENERAL GOVERNMENT
DIVISION

B-207023

AUG 15 1983



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The Honorable Jake Garn
Chairman, Committee on Banking,
Housing and Urban Affairs
United States Senate

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RELEASED

Dear Mr. Chairman:

Subject: S. 1120: An Administration Proposal to Print the
Backs of One Dollar Notes by Other Than the
Intaglio Method (GAO/GGD-83-98)

At your request we have examined the Department of the Treasury's proposal to print the backs of one dollar notes by the offset printing rather than the current intaglio printing method. (See enc.) Simply stated, the intaglio method uses high pressure to force blank currency paper into the lines of an engraved plate to pick up the ink whereas the offset method prints the ink on the surface of the paper as it passes a revolving drum.

Our report was requested after your committee hearings on June 22, 1983, when Treasury officials testified that the proposed conversion to offset printing would result in annual savings of \$5.4 million and would assure that the Bureau of Engraving and Printing (the Bureau) could continue its satisfactory service to one of its principal customers, the Federal Reserve System. You asked us to evaluate the Bureau's capacity to produce currency using either the intaglio or the offset method, evaluate the reasonableness of the Bureau's savings projections, and comment on the general advisability of changing to offset printing. The proposal is opposed by some of the Bureau's employee unions and favored by others.

The Bureau probably has sufficient capacity to meet the sharply increasing need for currency for the next 2 years, as indicated by the Federal Reserve banks, whether the backs of one dollar notes are printed by the offset method or by the intaglio method. However, offset currency printing would increase the Bureau's production capacity in fiscal year 1985 and would therefore more surely meet maximum currency requirements. Furthermore, offset printing probably could save in the range of \$5 million to \$6 million in fiscal year 1984. In addition, other factors discussed in this report favor the change to offset printing.

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OBJECTIVES, SCOPE, AND METHODOLOGY

The main purpose of our study was to examine the Bureau's estimate of its currency production capacity with conversion to the offset printing of the backs of one dollar notes, and without such conversion. We also reviewed the Bureau's estimate of savings which would result from use of the offset method as well as other issues relevant to the advisability of this proposed change.

We reviewed financial and production records of the Bureau and interviewed Bureau officials in the financial, production, engineering, and labor relations areas. We also determined the views and projected currency requirements of the Board of Governors of the Federal Reserve System by interviews with officials in that organization.

Because of the time frame constraints in your request, our review of actual production and financial data was based on summary information and supporting workpapers provided by Bureau staff officials. We verified those data on a limited basis, and we conducted corroborating interviews with Bureau line operating managers. We did not examine and evaluate the Federal Reserve banks' projected currency requirements.

We conducted interviews with union officials, both those opposing and those favoring the Bureau's proposal. We examined the specific objections raised against the Bureau's analysis by Local Number Two of the International Plate Printers, Die Stampers and Engravers Union of North America (the Washington Plate Printers Union), whose president testified before your committee.

Our review was conducted in accordance with generally accepted government auditing standards.

INTAGLIO PRODUCTION CAPACITY
IS PROBABLY SUFFICIENT
THROUGH FISCAL YEAR 1985

Your letter requested us to examine the Bureau's estimated capacity to produce currency, using both the intaglio and the offset printing methods. The testimony presented to the committee on behalf of the Bureau was based upon an internal study dated June 1, 1983. Since that time, two significant developments affecting capacity have occurred which render that study no longer current:

--The Federal Reserve has informed the Bureau that its currency requirements for fiscal years 1984 and 1985 may be 10 percent greater than previously indicated.

--The Bureau has estimated its future intaglio production capacity to be greater than the level that was used in the June study.

The result of these revisions is that the Bureau could probably meet the Federal Reserve's requirement using the current intaglio method for the next 2 fiscal years.

Increased Federal Reserve
currency requirements

In July 1983 interviews with an Assistant Director of the Division of Federal Reserve Bank Operations, we were advised that the Federal Reserve banks may order larger amounts of currency than previously indicated to the Bureau. Present reports from the banks show a possible need for 5.9 billion notes in fiscal year 1984, up from the 5.4 billion previously projected, and a possible need for 6.6 billion notes in fiscal year 1985, up from 6.0 billion.

Union officials objected to the maximum 1984 figure as being too high. The Federal Reserve explained that these increases reflect a desire on the part of the Reserve banks to accelerate their program of improving the average quality of all currency in circulation. The amount of currency which will ultimately be ordered is subject to further internal study by the Federal Reserve Board and to negotiation between the Board and the Bureau. We could therefore not justify a revision to the maximum figures used by the Bureau.

Increased estimate of Bureau's
intaglio production capacity

In July 1983, after we questioned the earlier June study, the Bureau made another study of intaglio production capacity, and the new study estimates higher capacity for fiscal years 1984 and 1985 than previously indicated. This increase reflects higher productivity recently experienced with the Bureau's newer intaglio printing presses and additional plate printing personnel.

Production capacity is defined here as the maximum amount of currency, expressed in billions of notes, that the Bureau can produce and deliver to the Federal Reserve banks in 1 fiscal year, based on a maximum 6-day work week. Historically, according to the Bureau, approximately one-half of the notes delivered are in the one dollar denomination. Therefore, the proposal to print the backs of only one dollar notes by the offset method

would increase intaglio capacity to produce other denominations of currency by about 25 percent.

A limiting factor to intaglio currency production capacity has been the availability of intaglio plate printers. Offset presses are not only faster than the intaglio presses but offer an additional advantage in that new offset pressmen to operate them are more readily available for hire. Thus, the conversion to offset printing can increase the Bureau's production capacity. The table below shows the Bureau's revised estimate of currency production capacity for fiscal years 1984 and 1985 and compares it to the estimated minimum and maximum Federal Reserve currency requirements for those years.

Production Capacity Compared to
Federal Reserve Requirements
(in billions of notes)

<u>Fiscal Year</u>	<u>Federal Reserve Requirements (Minimum - Maximum)</u>	<u>Production Capacity</u>	
		<u>Intaglio Method</u>	<u>Offset Method</u>
1984	5.4 - 5.9	5.9	5.9
1985	6.0 - 6.6	6.1	7.1

After we had completed our audit work, union officials informed us that the Bureau was planning to acquire four new intaglio presses by early 1984 and that new plate printers had just been hired. Since these factors would obviously change the capacity projections, we went back to the Bureau to inquire about these facts.

Bureau officials said that they are negotiating for the acquisition of four newer intaglio presses to replace older ones but that no decision has been made to buy them. The new presses, more productive than the old ones, would be for delivery in fiscal year 1985 rather than in 1984 as indicated in the union comments. The Bureau confirmed that two additional plate printers had been hired. The Bureau's Manager of its Production Management Staff told us that these new resources would increase the 1985 intaglio capacity to 6.3 billion notes, up from the 6.1 billion figure in the table above.

These estimates indicate that conversion to offset currency printing may not be necessary in the next 2 years. Using intaglio printing only, the Bureau can produce the maximum Federal Reserve note requirement for fiscal year 1984 and the midrange requirement for fiscal year 1985. Although the intaglio method could not apparently meet the maximum 1985 requirement, some Bureau officials believe that ways could be

found to make up a possible shortfall in fiscal year 1985 without conversion to offset printing. One possible way would be to hire even more intaglio plate printers, for example.

The Bureau's estimate of intaglio printing capacity is based upon actual current production levels of each of the existing intaglio presses, together with additional production on a comparable basis as new presses and intaglio printing personnel become available in fiscal year 1984. The Bureau's estimate of offset printing capacity is based upon a limited amount of testing but seems reasonable, assuming that similar performance will occur under actual full time operation.

OFFSET PRINTING COULD RESULT IN SAVINGS, BUT AMOUNT IS UNCERTAIN

Your letter requested us to review and comment on the Bureau's principal cost savings estimates in direct labor, plate printer's overtime, and ink used in the intaglio method versus the offset printing method. Since the committee hearings, the Bureau has revised its original 1984 savings estimate of \$5.4 million for producing 4.6 billion notes. The new estimates show a range in savings of \$5.0 million to \$6.1 million for producing 5.4 billion to 5.9 billion notes, respectively. Because of objections raised by the union, we questioned some of the assumptions underlying original savings estimates. At our request, the Bureau revised estimates because of changes in several assumptions about the manufacturing process and because of anticipated increases in currency production volume for the Federal Reserve. The table below shows the Bureau's savings estimates based on the projected minimum and maximum Federal Reserve currency requirements for fiscal year 1984.

Estimated Annual Savings by Conversion To
Offset Printing of Backs of \$1 Notes
(in millions of dollars)

<u>Element</u>	<u>Federal Reserve Requirements</u>	
	<u>5.4 Billion Notes</u>	<u>5.9 Billion Notes</u>
Direct labor	\$0.9	\$1.0
Plate printing overtime	0.4	0.9
Ink	2.3	2.6
Other	<u>1.4</u>	<u>1.6</u>
Total savings	<u>\$5.0</u>	<u>\$6.1</u>

The savings will depend on the amount of currency eventually ordered by the Federal Reserve. As production volume increases, total savings will increase due to lower unit costs for the offset method. On the other hand, savings will also depend on the validity of the assumptions underlying the calculations. For example, if the offset presses do not perform in operation as they did in testing, the lower production rates would increase unit costs and hence would lower savings.

On balance, the revised savings estimates are reasonably based if the Bureau's assumptions are accurate. However, we are not able to confirm fully these prospective cost savings because of the difficulty of assessing the several assumptions which underlie these estimates, such as the speed of both offset and new intaglio presses, downtime of the presses, and spoilage of paper stock using each method.

OTHER FACTORS SUPPORT
THE OFFSET OPTION

Your letter requested us to examine the advisability of using the offset method to print the backs of one dollar notes. In addition to the probable savings that would accrue, other factors exist that favor the Bureau's using the offset method. First, the change involves few risks. Second, the Federal Reserve, as the sole customer for currency, supports the change.

Change to offset method
entails few risks, could be reversed

Changing the printing process could pose potential financial and security risks. However, the risks posed by the Bureau's proposal are acceptable and can be controlled, so they should not preclude adopting the offset printing method.

Because the Bureau already has the offset presses it needs to print the dollar notes, no major capital expenditure is required. Other costs of changing to the offset method exist, such as testing paper, ink, and final products before offset production begins. However, Bureau officials (though lacking precise figures) told us they would be acceptable costs, certainly under \$1 million.

Opposing unions have cited the potential for offset to be more vulnerable to counterfeiting and be less acceptable to the public, but these arguments have not been solidly supported. Other countries have used offset printing for currency and found it satisfactory. The Treasury, the Federal Reserve, and the

U.S. Secret Service have said that a one dollar note is not an attractive denomination for counterfeiters; therefore, they discount this argument. Potential public acceptance is hard to measure, but in our inspection of a sample of offset printed dollar backs, we found it difficult to distinguish between intaglio printed and offset printed notes.

Because the proposed legislation to allow use of offset printing does not mandate it, the Bureau can revert to intaglio printing if unacceptable problems occur. Union officials pointed out that consequences exist if a change to offset has to be reversed. For example, the Bureau might fall behind in currency production, and changing back to intaglio production would create normal production restart difficulties.

Certainly there are consequences of reverting to intaglio from offset printing, but the union officials did not demonstrate that the risks of failure would be unacceptable. On the basis of the objections we discussed above, the likelihood of failure is not significant enough to deter trying the offset method.

Federal Reserve still supports legislation

Even though the revised figures shown earlier in this report indicate that the Bureau would probably meet the Federal Reserve's projected currency requirements using intaglio printing, the Federal Reserve still supports the change to offset. An Assistant Director of the Division of Federal Reserve Bank Operations told us that the Federal Reserve expects offset printed currency to cost less than intaglio. The Federal Reserve purchases currency from the Bureau, so it expects lower printing costs to lead to a lower price.

UNION AND AGENCY COMMENTS

The Plate Printer's Union raised several objections to a draft of our report. Union officials said that the draft

- was incomplete in its analysis because we did not challenge certain Federal Reserve currency projections,
- failed to mention an issue regarding the subcontracting of intaglio postage stamp printing as a way to meet increased currency requirements,
- did not discuss the impact of four intaglio presses and new press operators that will be available in 1984, not previously disclosed to us,

--minimized the risk of reversing the decision to go to offset printing, and

--did not note that the Bureau revised its original estimates of production and savings only after the Union and GAO raised questions about them.

With regard to the first point, we were not asked, nor was there time, to evaluate the Federal Reserve's currency projections. We can only note that the figure we used was the best available, and as of the time of our study we had no basis to question the Federal Reserve's projections.

We considered the postage stamp issue but omitted it from the draft report because it was beyond the scope of your request. Briefly, the Treasury told the committee that one of the alternatives for increasing intaglio currency production capacity would be to decrease the printing of postage stamps (also done by intaglio) and concentrate on printing currency. The Treasury said that this could lead to the loss of as many as 1,000 jobs at the Bureau because the Postal Service would contract in the private sector for the work.

We did not review the viability of this alternative, given the time constraint for our review. However, two separate studies, one each by the Treasury Department and the U.S. Postal Service last year, concluded that production by the Bureau of most of the postage stamp requirements is the most desirable alternative. In addition, the Manager of the Stamp Management Branch, Stamps Division, of the Postal Service, told us that it would strongly resist contracting out a significant portion of the current Bureau volume in the foreseeable future.

We incorporated discussion of the last three points in the body of our report.

Officials at the Bureau agreed with the thrust of our draft report. They offered some minor editorial changes which we considered and incorporated as appropriate.

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As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this

report until 30 days from the date of the report. At that time we will send copies to interested parties and make copies to others available upon request.

Please advise if we can be of further assistance.

Sincerely yours,

A handwritten signature in cursive script that reads "W. J. Anderson".

William J. Anderson
Director

Enclosure

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United States Senate

COMMITTEE ON BANKING, HOUSING, AND
URBAN AFFAIRS

WASHINGTON, D.C. 20510

June 27, 1983

Honorable Charles A. Bowsher
Comptroller General of the
United States
General Accounting Office
441 G St. N.W.
Washington, D.C. 20548

Dear Mr. Comptroller General:

The Senate Committee on Banking, Housing and Urban Affairs held hearings on June 22, 1983, to examine S.1120, an Administration proposal to print the backside of \$1 bills using a method other than the intaglio method. Conflicting testimony was received concerning the ability of the Bureau of Engraving and Printing to increase their capacity to produce currency using intaglio printing for both sides of all currency, and the cost savings that would arise from a printing change on the back of \$1 bills.

Before the hearing, I requested that the General Accounting Office examine the figures relied upon by the Bureau of Engraving and Printing which underlie their support for S.1120. The GAO staff involved in that review apparently concluded that the Bureau's figures were reasonable, but shortage of time precluded this opinion from going through the GAO review process and becoming an official GAO position.

Because controversy continues on this issue, I am requesting that the General Accounting Office examine the numbers relied upon by the Bureau of Engraving and Printing concerning

-- the capacity of the Bureau to produce currency meeting the nation's currency needs projected by the Federal Reserve Board if the printing method for the \$1 bill is not changed;

-- the capacity of the Bureau to produce currency meeting the nation's currency needs projected by the Federal Reserve Board if the printing of the backside of \$1 bills can be web-offset printed; and

-- the advisability of using a method, other than the intaglio method, to print the back of \$1 bills, given the Federal Reserve Board's projected increases in currency notes and the Bureau's capacity to meet those increases.

ENCLOSURE

ENCLOSURE

Honorable Charles A. Bowsher
June 27, 1983
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I am also submitting for your review and comment the principle cost savings estimates (direct labor, ink, printer's overtime) of the Bureau.

I would appreciate a letter response from the GAO as soon as possible, preferably before August 15, 1983, so that we can decide whether or not to proceed with this legislation. If you or your staff have any questions, please contact Linda Zemke of the Banking Committee staff at 224-1564.

Sincerely,



Jake Garn
Chairman

JG:lzk